

MODIS Technical Team Meeting
Thursday, August 7, 2003
GSFC Building 33, Room E125

Vince Salomonson chaired the meeting. In attendance were Bruce Guenther, Barbara Conboy, Gerhard Meister, Wayne Esaias, Eric Vermote, Ed Masuoka, Robert Wolfe, Steve Kempler, Michael King, Greg Leptoukh, and Dorothy Hall, with Yolanda Harvey taking the minutes.

1.0 Upcoming Meetings

- MODIS Oceans Data Use Workshop. September 4-5, 2003, Oregon State University.
- 2003 Fall AGU Meeting. September 8-12, San Francisco, California, USA. Abstracts due August 28 (postal and express mail), September 4 14:00 UT (electronic submission). <http://www.agu.org/meetings/fm03/>
- 10th International Symposium on Remote Sensing by The International Society for Optical Engineering (SPIE). September 8-12, 2003, Barcelona, Spain (abstracts deadline past) <http://www.spie.org/info/rs>
- MODIS Science Team Meeting, October 29-31, 2003, Baltimore-Washington International Airport (BWI) Marriott

2.0 Meeting Minutes

2.1 General Discussion

Salomonson noted that he has changed the MODIS Science Team meeting to October 29, 30, and 31. He expects that the new Science Team members should be announced by then. He added that he is going to suggest that there be a "Lessons Learned" section in everyone's final reports.

Salomonson noted that from all reports the IGARSS meeting went well, and that the DAAC booth was especially effective. Overall, MODIS was very popular. Esaias reported that Salomonson's session was very successful; about 150 people attended. King noted that the overall attendance at IGARSS was around 1500.

Salomonson announced that the MODIS Technical Team meeting time has been moved back by half an hour to 2:30 pm.

2.2 Instrument Status

2.2.1 Terra MODIS

Guenther reported that the Solar Diffuser (SD) door on Terra is open, and the SD screen is closed. The M1 LUTs (using diurnal averaging) were delivered on August 6th. There was a data drop from the solid-state recorder on day 212 (year 2003) of granules 1930 and part of 1935. Platform inclination change maneuvers had been scheduled for early July, and were completed successfully by August 6th. The next inclination change maneuvers are scheduled to be no earlier than October 2004.

Salomonson reported that the solid-state recorder (SSR) was discussed at a recent Terra teleconference. There is some indication that a number of supersets on ASTER were

deleted, and it is not clear who will supply replacements. Guenther proposed asking them to dump the SSR memory more frequently. Wolfe asked if there was any breakage, and Salomonson said no, but that they need to do some adjusting.

2.2.2 Aqua MODIS

Guenther reported that for Aqua, the M1 LUT is due today. On August 12th there will be a yaw demonstration maneuver (thrusters will fire to place it into delta inclination orientation), but the actual maneuver will occur on October 2nd, 2003.

2.3 DAAC

Kempler reported that the GES DAAC is operating normally, with the exception of distribution. Distribution is heavily backlogged, in part because there are a lot of people using and ordering data. There are two facets to the problem: short term and long term. In the short term, the two-week backlog needs to be distributed. In the long term, they need to figure out a way to keep this problem from recurring. One strategy involves Skip Reber, and has to do with how data is distributed to the instrument teams.

Salomonson said that the problem now is in providing service to the public as well as other instrument teams, plus the high volume of QA data being produced. Initially it was projected that QA would take about 10 percent of the distribution volume, but right now it is closer to 20 percent. The public is drawing out a lot of data, and the DAAC is also sending high volumes of data to a number of others, including the University of Miami. Kempler said that SeaWiFS/SYMBIOS is getting a L1A subset as well. The DAAC people are in the process of analyzing the bottleneck – they're looking at the total number of threads, not what each individual thread is. Masuoka asked if sending the Level 1A subset that MODAPS receives to SYMBIOS and Miami would help, and Kempler said yes, that would be a big help. He noted that the squeeze is going to get bigger when the Ocean reprocessing starts, since right now they're only doing the forward stream. Salomonson asked Kempler to bring back some proposals for how the disciplines can deal with the problem.

Kempler reported that in one week, the DAAC is sending out 3.8 TB of data electronically, and another 3.8 TB by physical media. Last week they got 7.2 TB out electronically, but they can't maintain that level. 2.5 TB of that data went to the public, 2.2 went to other DAACs and instrument teams, and 2.5 TB went to the MODIS team for QA. Vermote wondered what people's reactions are going to be to the backlog, and Kempler said that the DAAC is keeping the latest status up on their website. Salomonson asked that Kempler keep Reber apprised of the backlog status. Vermote noted that there is also a backlog at the EDC DAAC. Kempler said that the subscription orders are getting the highest priority. Wolfe asked if this is going to be an expensive problem to solve, and Kempler said yes, since they will probably need more threads and hardware. Salomonson asked if the QA volume level could be dropped, and Esaías replied that it would probably always be at least at this level, since it is so crucial to validation and reprocessing efforts.

2.4 MODAPS

Masuoka reported on the issue of deleting older data collections. Once a Collection 4 granule is complete, within six calendar months, DAACs can delete the corresponding granule from the earlier collection. Salomonson added that the basic principle not

addressed by the current requirements is having complete traceability over time (that's the fundamental scientific principle behind keeping all the data). Masuoka continued, saying that we have several options for handling the deletes (referring to attached handout), but at recent PIP meeting the preferred option appears to be the six calendar-month rolling-delete of most products but selecting some Level 3 products to save until six months after the current reprocessing has finished (option 3B). Based on discussions at the Tech Team meeting it was decided that there were some products that the science team will want to save across all collections starting with the Collection 4 reprocessing. The following were identified: all Atmosphere L3 products, some Ocean chlorophyll L3 products and some 8-day and higher Level 3 Land products. If we're talking about keeping selected products around for comparison purposes, before making the final selection of products to retain we should engage the NASA HQ program managers in the decision (if possible). Salomonson agreed, saying that we should present a plan to them for their agreement. There is a scenario of someone publishing a paper based on an earlier collection, then having a new collection come out that forces the deletion of the older data. Hall suggested that it is possible to figure out the specific changes in collections from existing documentation, such as what exists on different discipline's websites.

Masuoka said that if the Science Team agrees that every reprocessing improves the data, we might want to store only the latest Collection since any trend in Collection 3 that is real should also manifest itself in Collection 4. However, the Science Team members present thought we still needed to store a subset of granules and products that address issues of traceability between Collections. Esaias suggested saving some golden months from each collection, and Salomonson agreed. Salomonson said that we ought to keep something that could show how different collections are different and how they've improved. Wolfe cautioned that we need to be careful of the impact this would have on the data ordering interfaces, since there are already two versions of every product available on the EDG ordering system. He suggested fixing the interface so that the default is to pull data from the latest collection, but making it possible to drill down to older collections. Salomonson said that we should put something like that together that will start with a common month starting in Collection 3. Esaias said that it makes sense to still save some higher-level low-volume products. Masuoka said that we should announce at the DAACs that this is going to happen, and then tell people to order the older data now before they get deleted. Wolfe said that we should put the onus on the investigator and user to make the argument to keep the older data around.

Masuoka reported that Robert Wolfe and Mike Teague have begun developing the schedule for fixing the band-to-band registration on Aqua (distributed a handout of their schedule). He said that it is unlikely that MCST can analyze and implement the improvements to Level 1B based on solving the problems with light entering the SD from the Earth in time for science tests leading up to the January 1st, 2004, start of the Aqua reprocessing, so Land and Atmospheres will start without Oceans. Having the capability to reprocess separately is important. Esaias asked about the L1B data, and Masuoka said that the one aspect of L1B for Atmospheres is to fix the band-to-band registration problem, but not necessarily the SD problem, depending on the timing of that fix and the desire of the Science Team to begin generation of Level 2+ products in January 2004. Salomonson noted that we will finish Land and Atmospheres in September, and the Aqua reprocessing will start in January 2004. Masuoka continued that the start date for Land

and Atmospheres seems feasible, but the requirement to have the SD fix in Level 1B may delay the reprocessing for Oceans.

At the moment, the SD problem is common to Aqua and Terra for the Oceans bands. The dilemma is what to do with the current Terra 4.1 Oceans reprocessing. The radiance problem is at the 0.2 to 0.3 percent levels, so it doesn't work well over (in particular) the Southern Ocean, and to solve that problem, the SD problem must be resolved. Progress has been made there, but the question is when the Terra reprocessing for Oceans will be complete. Some people want to wait until the fix is completed, then reprocess Terra and Aqua together, but if we hold up the Ocean Color product, then we're also holding up the SST product, which is a first-class, best-in-world product, and we don't want to hold that one up. We want to sort this out, but it is very complicated. Esaias added that the problem is not just with the SD, but the ramifications on BRDF, etc. Salomonson said that if the temporal test looks better than what we have in the archive, then we can probably go ahead.

Masuoka said that the thing that drives the start of the Aqua reprocessing for Land and Atmospheres is fixing the band-to-band registration. He noted that the January 1 is an optimistic date for starting the reprocessing as it requires folks to quickly evaluate the results from the Science Test of the L1B changes and assumes that major problems with the L1B changes will not be uncovered in the Science Test. Wolfe said that for the schedule on the band-to-band registration fix, the first step is to identify the affected Land and Atmospheres algorithms. Once we have some fixes identified, then we can prototype, test, and evaluate them, then select one to send to MCST. We have to test the fixes, because in doing a fix, we are introducing noise, and we have to look at the net impact on the products. The rest is just getting code into operations by November 1st. Esaias said that SST will also have to be tested, just in case. Wolfe said that he needs a list of things that we can expect to be affected.

2.5 Oceans

Esaias reported that there is going to be a MODIS Ocean Data Use Workshop at Oregon State on September 4th and 5th, 2003.

2.6 Atmospheres

King reported that the MODIS Level 2 sub-sampled product has been produced. The details of the product are listed on the MODIS Atmospheres website (<http://modis-atmos.gsfc.nasa.gov/JOINT/index.html>). It should go into production sometime in November of this year. Masuoka said that he heard of some concerns about the data product's design from Bill Ridgway, and King replied that the design was forced by HDF EOS requirements. He is planning on having some visualization/extraction tools designed that will run without IDL. He said that he is also going to try to get some CDs of the product produced in time for the Fall AGU meeting, though there are still revisions left to do. He may also develop an article on it for the Earth Observer.

King reported that 45 SAFARI 2000 papers were published in JGR-Atmosphere, one of four special issues that will contain SAFARI 2000 results.

King reported that some of the data days with a corrupted NICE ancillary input affected some of the Atmospheres products, such as Cloud Mask, and he would like those data

days to be reprocessed. Wolfe said that they are cleaning up the data that is near the reprocessing times, and when that is completed, they will go back and pick out any other left over days. King said that it is the Cloud Product, the Cloud Mask, and the L3s that are the most affected. This corruption occurred when the production system, primarily on weekends, failed to download the correct NISE snow and ice datasets that are important ancillary information in the code. Wolfe said that we should probably stop the reprocessing, fix the problem, and then restart the reprocessing.

King reported that he has gotten contributions for his white paper from all Goddard MODIS participants, save two: Eric Vermote and Wayne Esaias. Both said that they would submit contributions.

3.0 Action Items

3.1 New Action Items

3.1.1 Kempler to bring back some proposals for how the disciplines can deal with the DAAC distribution problem.

3.2 Old Action Items

3.2.1 Kempler to coordinate with Oceans group on creating documentation for the DAAC on the new Oceans L1A data subsets.

Status: Open.

3.2.2 Tech Team to further discuss TRW using MODIS data for validation of the NPP/NPOESS production process.

Status: Open.

3.2.3 PIP to develop list of items to go into work plan for the new contract (EMD).

Status: Open.

3.2.4 Ed Masuoka to invite a NOAA delegate to the weekly MODIS Tech Team meetings or the PIP meetings.

Status: Open. Masuoka sent the invitation.

3.2.5 Xiong to email details of Aqua lunar calibration maneuver proposal to Salomonson and Harvey.

Status: Open.